

In the Specification

Page 1, line 4, insert

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. Application Serial No. 08/764,340 filed December 12, 1996.

Page 20, line 6, after "i.e" insert ---.

Page 24, line 9, change "burst" (after AGC) to --field--.

In the Claims

Cancel claims 1-20 without prejudice or disclaimer to the subject matter recited therein.

Add the following claims:

47. A disk drive, comprising:

a disk having a plurality of concentric tracks for storing data, the tracks including a first track having a first data pattern with a first frequency, a second data pattern with a second frequency that is higher than the first frequency, an AGC field and a burst field, wherein one of the first and second data patterns is located in one of the AGC and burst fields;

a head for reading data from and writing data to the disk; and

a detection circuit that determines whether the head is within an acceptable flying height range in response to the first and second data patterns.

48. The disk drive of claim 47, wherein the first data pattern is located in the

AGC field.

1 49. The disk drive of claim 48, wherein the second data pattern is located in
2 the AGC field.

1 50. The disk drive of claim 47, wherein the second data pattern is located in
2 the burst field, and the burst field is used primarily during seek and settling operations.

1 51. The disk drive of claim 47, wherein the second data pattern is located in
2 the burst field, and the burst field is exclusively used to determine whether the head is
3 within an acceptable flying height range.

1 52. The disk drive of claim 51, wherein the burst field is continuous and
2 extends across all tracks on a surface of the disk.

1 Sub 32 53. The disk drive of claim 47, wherein the first data pattern is located in the
2 ACG field and the second data pattern is located in the burst field.

1 54. The disk drive of claim 53, wherein the burst field is one of a C burst field
2 and a D burst field.

1 Sub 33 55. The disk drive of claim 54, wherein the track includes an A burst field and
2 a B burst field between the first and second data patterns.

1 56. The disk drive of claim 55, wherein the A, B, C and D burst fields are
2 located in a single servo region, the A and B burst fields are used primarily during track
3 following operations, and the C and D burst fields are used primarily during seek and
4 settling operations.

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57. A disk drive, comprising:
2 a disk having a plurality of concentric tracks for storing data, the tracks including
3 a first track having a data pattern;
4 a head for reading data from and writing data to the disk; and
5 a detection circuit that determines whether the head is within an acceptable flying
6 height range in response to a peak count of a detection signal based on the data pattern.

58. The disk drive of claim 57, wherein the data pattern is a constant
2 frequency pattern.

59. The disk drive of claim 57, wherein the data pattern is a random pattern.

60. The disk drive of claim 57, wherein the data pattern is a linearly increasing
2 frequency pattern.

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61. The disk drive of claim 57, wherein detection circuit includes a transition
2 detector, a counter, and a memory.

62. The disk drive of claim 61, wherein the transition detector detects a
2 transition in the detection signal only when the detection signal exceeds a predetermined
3 threshold value.

63. The disk drive of claim 62, wherein the counter counts the number of
2 transitions in the detection signal detected by the transition detector and provides the peak
3 count.

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1 64. The disk drive of claim 63, wherein the memory provides a calibration
2 value corresponding to a data storage location on the track that is accessed during one of
3 a read and write operation while the data pattern is read to provide the detection signal.

1 65. The disk drive of claim 64, wherein the detection circuit determines
2 whether the head is within an acceptable flying height range in response to the peak count
3 and the calibration value.

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1 66. The disk drive of claim 65, wherein the detection circuit postpones the
2 operation if the detection circuit determines that the head is not within an acceptable
3 flying height range.

15 *Sub 27* 67. A disk drive, comprising:
2 a disk having a plurality of concentric tracks for storing data, the tracks including
3 a first track having a random data pattern;
4 a head for reading data from and writing data to the disk; and
5 a detection circuit that determines whether the head is within an acceptable flying
6 height range in response to a peak count that is based on the random data pattern and is
7 substantially proportional to the flying height of the head.

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1 68. The disk drive of claim 67, wherein the random data pattern is determined
2 by empirical methods.

1 69. The disk drive of claim 67, wherein the random data pattern is located in
2 an AGC field.

1 70. The disk drive of claim 67, wherein the peak count is directly proportional
2 to the flying height of the head.

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1 71. The disk drive of claim 67, wherein detection circuit includes a transition
2 detector, a counter, and a memory.

1 72. The disk drive of claim 71, wherein the transition detector detects a
2 transition in a detection signal based on the random data pattern only when the detection
3 signal exceeds a predetermined threshold value.

1 73. The disk drive of claim 72, wherein the counter counts the number of
2 transitions in the detection signal detected by the transition detector and provides the peak
3 count.

1 *Sub 9* 74. The disk drive of claim 73, wherein the memory provides a calibration
2 value corresponding to a data storage location on the track that is accessed during one of
3 a read and write operation while the random data pattern is read to provide the detection
4 signal.

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1 75. The disk drive of claim 74, wherein the detection circuit determines
2 whether the head is within an acceptable flying height range in response to the peak count
3 and the calibration value.

1 76. The disk drive of claim 75, wherein the detection circuit postpones the
2 operation if the detection circuit determines that the head is not within an acceptable
3 flying height range.

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1 77. A disk drive, comprising:
2 a disk having a plurality of concentric tracks for storing data, the tracks including
3 a first track having a linearly increasing frequency data pattern;
4 a head for reading data from and writing data to the disk; and
5 a detection circuit that determines whether the head is within an acceptable flying
6 height range in response to a linearly increasing frequency data pattern.

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1 78. The disk drive of claim 77, wherein the linearly increasing frequency data
2 pattern is located in an ACG field.

1 79. The disk drive of claim 77, wherein the linearly increasing frequency data
2 pattern is located in a servo burst pattern.

1 80. The disk drive of claim 77, wherein the linearly increasing frequency data
2 pattern is located in a burst pattern that is continuous and extends across all tracks on a
3 surface of the disk.

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1 81. The disk drive of claim 77, wherein detection circuit includes a transition
2 detector, a counter, and a memory.

1 82. The disk drive of claim 81, wherein the transition detector detects a
2 transition in a detection signal based on the linearly increasing frequency data pattern
3 only when the detection signal exceeds a predetermined threshold value.

1 83. The disk drive of claim 82, wherein the counter counts the number of
2 transitions in the detection signal detected by the transition detector and provides the peak
3 count.

1 84. The disk drive of claim 83, wherein the memory provides a calibration
2 value corresponding to a data storage location on the track that is accessed during one of
3 a read and write operation while the linearly increasing frequency data pattern is read to
4 provide the detection signal.

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1 85. The disk drive of claim 84, wherein the detection circuit determines
2 whether the head is within an acceptable flying height range in response to the peak count
3 and the calibration value.

1 86. The disk drive of claim 85, wherein the detection circuit postpones the
2 operation if the detection circuit determines that the head is not within an acceptable
3 flying height range.

1 87. A disk drive, comprising:
2 a disk having a plurality of concentric tracks for storing data, the tracks including
3 a first track having a first data pattern with a first frequency and a second data pattern
4 with a second frequency that is higher than the first frequency;
5 a head for reading data from and writing data to the disk; and
6 a detection circuit that determines whether the head is within an acceptable flying
7 height range in response to the first and second data patterns while the head is at a
8 substantially constant flying height and independently of flying height data obtained from
9 the disk drive at other than the substantially constant flying height.

1 88. The disk drive of claim 87, wherein the second data pattern is a constant
2 frequency pattern.

1 89. The disk drive of claim 87, wherein the second data pattern is a random
2 pattern.

1 90. The disk drive of claim 87, wherein the second data pattern is a linearly
2 increasing frequency pattern.

1 91. The disk drive of claim 87, wherein the second data pattern is located in an
2 AGC field.

1 92. The disk drive of claim 87, wherein the second data pattern is located in a
2 servo burst field.

1 93. The disk drive of claim 87, wherein the detection circuit determines
2 whether the head is within an acceptable flying height range independently of flying
3 height data obtained from the disk drive at a predetermined flying height.

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1 94. The disk drive of claim 87, wherein the detection circuit includes a
2 transition detector, a counter, and a memory.

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1 95. The disk drive of claim 94, wherein the transition detector detects a
2 transition in a detection signal based on the second data pattern only when the detection
3 signal exceeds a predetermined threshold value, the counter counts the number of
4 transitions in the detection signal detected by the transition detector and provides a peak
5 count, the memory provides a calibration value corresponding to a data storage location
6 on the track that is accessed during one of a read and write operation while the first and
7 second data patterns are read, and the detection circuit determines whether the head is
8 within an acceptable flying height range in response to the peak count and the calibration
9 value.

1 96. The disk drive of claim 95, wherein the detection circuit postpones the
2 operation if the detection circuit determines that the head is not within an acceptable
3 flying height range.

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1 97. A disk drive, comprising:
2 a disk having a plurality of concentric tracks for storing data, the tracks including
3 a first track having a first data pattern with a first frequency and a second data pattern
4 with a second frequency that is higher than the first frequency;
5 a head for reading data from and writing data to the disk; and
6 a detection circuit that determines whether the head is within an acceptable flying
7 height range in response to the first and second data patterns while the head is at a
8 substantially constant flying height and independently of flying height data obtained from
9 the disk drive at a predetermined flying height.

1 98. The disk drive of claim 97, wherein the second data pattern is a constant
2 frequency pattern.

1 99. The disk drive of claim 97, wherein the second data pattern is a random
2 pattern.

1 100. The disk drive of claim 97, wherein the second data pattern is a linearly
2 increasing frequency pattern.

1 101. The disk drive of claim 97, wherein the second data pattern is located in an
2 AGC field.

1 102. The disk drive of claim 97, wherein the second data pattern is located in a
2 servo burst field.

1 103. The disk drive of claim 97, wherein the detection circuit determines
2 whether the head is within an acceptable flying height range independently of flying

3 height data obtained from the disk drive at other than the substantially constant flying
4 height.

1 *Sub B2* 104. The disk drive of claim 97, wherein the detection circuit includes a
2 transition detector, a counter, and a memory.

1 105. The disk drive of claim 104, wherein the transition detector detects a
2 transition in a detection signal based on the second data pattern only when the detection
3 signal exceeds a predetermined threshold value, the counter counts the number of
4 transitions in the detection signal detected by the transition detector and provides a peak
5 count, the memory provides a calibration value corresponding to a data storage location
6 on the track that is accessed during one of a read and write operation while the first and
7 second data patterns are read, and the detection circuit determines whether the head is
8 within an acceptable flying height range in response to the peak count and the calibration
9 value.

1 106. The disk drive of claim 105, wherein the detection circuit postpones the
2 operation if the detection circuit determines that the head is not within an acceptable
3 flying height range.